PARTICLE PHYSICS DIVISION OPERATING MANUAL
REVIEW AND APPROVAL RECORD

ALARA PROGRAM

Revised by Wayne Schmitt 10038 N Date 11/10/08
Name/ID#

Approved by [signature] Date 11/13/08
PPD Head

ALARA PROGRAM

INTRODUCTION

As Low As Reasonably Achievable (ALARA) is a radiation protection approach to manage and control exposures to workers and the general public at levels as low as is practicable, taking into account social, technical, economic, practical and public policy considerations. The Fermilab ALARA program is established to minimize radiation exposures from laboratory operations. The PPD ALARA program shall be implemented by line management to assure that all requirements of the Fermilab ALARA program are met.

PPD conducts work activities in such a manner that worker and public safety, as well as protection of the environment are given the highest priorities. PPD management is committed to maintaining any risks associated with ionizing radiation or radioactive materials at levels that are consistent with the ALARA concept.

REFERENCES

Fermilab Radiological Control Manual (FRCM)

RESPONSIBILITIES

1. PPD Head

   Ensure that plans, procedures, equipment, facilities, experiments and programs are reviewed for purposes of maintaining radiation exposures, the spread of radioactive contamination, and the release of radioactive effluents at levels that are ALARA.

2. PPD Radiation Safety Officer (RSO)

   a. As a part of the ALARA process, the RSO shall review dosimetry results for PPD personnel. Any unusual or above normal results, as determined by the ES&H Section Dosimetry Program Manager, shall be investigated and reported as outlined in the FRCM.

   b. Serve on the Radiation Safety Subcommittee.

   c. Provide assistance to PPD personnel in the implementation of the ALARA program.

d. Review selected procedures involving radiological work and facility design changes for the purpose of recommending improvements to maintain exposures, the spread of radioactive contamination, and the release of radioactive effluents at levels that are ALARA.

e. Provide technical support for the installation and uses of shielding and containments.

f. Consult with the Laboratory ALARA Coordinator or other members of the radiological control organization as necessary to ensure that ALARA objectives are met.

3. Radiological Control Technicians

a. As directed**,** conduct radiological surveillance, establish exposure and contamination controls, and prescribe protective requirements during radiological work to maintain exposures, the spread of radioactive contamination, and the release of radioactive effluents at levels that are ALARA.

b. Stop work when conditions and/or practices are deemed unsafe or would violate Laboratory requirements or policies. Immediately report work stoppage to the appropriate level of management.

c. Report any radiological problems and concerns, along with any corrective actions, to the PPD RSO.

4. Design Engineers, Schedulers and Planners

a. Based on input from the PPD RSO and ES&H Section Radiation Protection Group members, incorporate radiological design considerations into new facilities, modifications to existing facilities, and construction projects in order to maintain exposures, the spread of radioactive contamination, and the release of radioactive effluents at levels that are ALARA.

b. Seek input from Fermilab's radiation protection professionals as early in the design process as possible.

5. Supervisors

a. Ensure that employees under their direction are aware of all relevant radiological hazards and have received all required training. Also, if area radiological conditions exceed 5 mR/hr or contamination values exceed those of FRCM Table 2.2, ensure a Radiological Work Permit (RWP) has been approved before work begins.

b. Carry out operations under their area of responsibility in such a manner that exposures to workers, researchers, and the general public and releases to the environment are maintained ALARA.

c. Report radiological accidents, incidents, and other unsafe radiological conditions or workers' radiological concerns, as necessary, and any associated corrective actions to the PPD RSO.

d. Review operating procedures to determine if controls have been established to maintain exposures ALARA.

e. Ensure that employees under their supervision use proper techniques to maintain exposures ALARA.

6. Individual Worker

a. Maintain his or her own, and to the extent possible, his or her coworker's radiation exposure at levels that are ALARA.

b. Minimize the spread of radioactive contamination and release of radioactive effluents.

c. Observe requirements of all radiological signs, postings, RWPs and radiological procedures. Follow instructions given by radiological control personnel.

d. Attend job briefings.

e. Report any radiological problems and concerns, along with any associated corrective actions, to his/her first-line supervisor.

ALARA CONTROL MEASURES

1. Participation in Fermilab's Radiation Safety Subcommittee

The PPD RSO shall represent PPD on the Radiation Safety Subcommittee. This subcommittee, commissioned by the Laboratory Director, is responsible for coordinating the implementation and improvement of the Fermilab radiation safety program. It is charged with meeting regularly to discuss radiation protection issues and develop solutions that will promote compliance and uniform implementation lab-wide in a cost effective manner. The subcommittee reports to the Laboratory Director through the ES&H Section Associate Head for Radiation Protection and Fermilab's Senior Radiation Safety Officer.

2. Training

All PPD employees shall complete the relevant Fermilab radiological training. The training is offered by the ES&H Section and incorporates ALARA concepts to heighten individual awareness of ALARA and inform them of their responsibilities with respect to the program's implementation.

3. Assessments

The PPD/ES&H Group shall assess the ALARA program using the following methods:

a. Conduct Snoop surveys per the PPD ES&H Snoop Survey program

b. Conduct a formal ALARA review, per the procedures outlined in the FRCM, for those jobs that may exceed FRCM ALARA trigger levels.

c. Investigate dosimetry results that are suspect or deemed "unusual" by the ES&H Section Dosimetry Program Manager.

d. Investigate radiation exposure of individuals placed on the ALERT list by the ES&H Section Dosimetry Program Manager.

4. Radiological Design Review

Plans, procedures, equipment, facilities, experiments and programs shall be reviewed for purposes of assuring that radiation exposures, the spread of radioactive contamination, and the release of radioactive effluents at levels are ALARA.

ALARA design review phases include dose assessment, review of radiological conditions, identification of the applicable radiological design criteria, and consideration of optimum alternatives using ALARA optimization methods. A design review package should incorporate and document features to maintain exposures, the spread of radioactive contamination and the release of radioactive effluents at ALARA levels. These design review elements are contained in Chapter 3 of the FRCM.

5. Radiation Areas

Written authorization is needed for entry into a Radiation Area. RWP's, as described in the FRCM or alternative means approved by either the PPD RSO or ES&H Section, shall be used for this purpose.

RECORDS

Records associated with the ALARA program are maintained in accordance with FRCM Chapter 7. Records shall be maintained by the PPD ES&H Group and the applicable line organization.

Revision History

Author(s)	Description	Revision	Date
A. Sands	Add document control disclaimer and revision history page	7/31/09	7/31/09